Remarks

Amendments to the claims

Claims 23 has been amended as provided above. Specifically, claim 23 has been amended to include all of the limitations of claim 24 (now cancelled). Claims 24, 27-29 and 49 have been cancelled, without prejudice. No new matter has been added by the amendments to the claims.

Rejection of claims under 35 U.S.C. § 102

Claims 23-25, 27-29 and 49 have been rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,136,305 ("Ims"). As claims 24, 27-29 and 49 have been cancelled as provided above, the respective 102 rejections of these claims are now moot.

The Applicants respectfully disagree that claims 23 (as amended) and 25 are anticipated by Ims.

As a starting point, the PTO and the Federal Circuit provide that §102 anticipation requires each and every element of the claimed invention to be disclosed in a single prior art reference. (*In re Spada*, 911 F.2d 705, 15 USPQ2d 1655 (Fed. Cir. 1990)). The corollary of this rule is that the absence from a cited §102 reference of any claimed element negates the anticipation. (*Kloster Speedsteel AB, et al v. Crucible, Inc., et al*, 793 F.2d 1565, 230 USPQ 81 (Fed. Cir. 1986)). Furthermore, **"[a]nticipation requires that all of the elements and limitations of the claims are found within a single prior art reference."** (*Scripps Clinic and Research Found. v Genetech. Inc.,* 927 F.2d 1565, 1576, 18 U.S.P.Q.2d 1001, 1010 (Fed. Cir. 1991 (emphasis added)). Moreover, the PTO and the Federal Circuit provide that §102 anticipation requires that there must be no difference between the claimed invention and the reference disclosure. (*Scripps Clinic and Research Found. v. Genetech, Inc.,* id. (emphasis added)).

Accordingly, if the Applicants can demonstrate that any one element or limitation in claims 23 and 25, as respectively amended, is not disclosed by Ims, then the respective claim(s) must be allowed.

In the following arguments, the Applicants will focus in particular on independent claim 23, as amended, as the Applicants believe that claim to be allowable over Ims. It is axiomatic that any dependent claim which depends from an allowable base claim is also allowable, and therefore the Applicants do not believe it is necessary to present arguments in favor of each and every dependent claim.

Claim 23

The Applicants contend that claim 23, as amended, (and rejected claim 25 that depends therefrom) are not anticipated by Ims. With regard to claim 23, as amended, that claim includes the following features and limitations:

> An imaging apparatus configured to form images on a sheet media, comprising:
>
> [...]
>
> a controller coupled in signal communication with the thermistor device and configured to control at least one operation of the imaging apparatus in accordance with the level signal, wherein the controller is further configured to provide a level message corresponding to the level signal to a user computer.
>
> (Emphasis added.)

Ims fails to provide a controller coupled in signal communication with the thermistor device, wherein the controller is further configured to provide a level message corresponding to the level signal to a user computer, as recited in

combination with the other features and limitations of claim 23, as amended. In fact, Ims is completely devoid of the terms and phrases "message", "level message", "computer", "user computer", or any of their respective equivalents, in any context.

Rather, Ims is directed to an ink jet printer wherein an ink supply monitoring means provides for the automated replenishing of ink within a translatable ink jet printhead by way of a fixed reservoir (Abstract of Ims). Ims provides no teachings or suggestions whatsoever regarding the provision of any sort of message to a user computer, and Ims certainly does not provide or suggest the provision of a level message, as recited by claim 23, as amended. As a result, Ims fails to provide at least one element or limitation as recited by claim 23, as amended. Thus, the 102 rejection of claim 23, as amended, is invalid and should be withdrawn.

For at least these reasons the Applicants contend that claim 23, as amended, is allowable. As claim 25 depends from claim 23, it is axiomatic that claim 25 is also allowable at least by virtue of its dependence from an allowable base claim.

Rejection of Claims under 35 U.S.C. § 103

Claims 1, 3-4, 6 and 8-9, 43-47 and 48 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,136,305 ("Ims") in view of the text Mechanical Measurements by Beckwith ("Beckwith").

Claim 24 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Ims. Claim 24 has been cancelled as provided above. Therefore, the 103 rejection of claim 24 is now moot.

The Applicants respectfully disagree that claims 1, 3-4, 6, 8-9, 43-47 and 48 are unpatentable over Ims in view of Beckwith.

As a starting point, MPEP 706.02(j) states:

> "[t]o establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or

motivation, either in the cited references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, **the prior art reference** (or references when combined) **must teach or suggest all the claim limitations**. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art and not based on applicant's disclosure." (Emphasis added.)

In the following arguments, the Applicants will focus in particular on independent claims 1, 43 and 48, as the Applicants believe those claims to be allowable over Ims in view of Beckwith. It is axiomatic that any dependent claim which depends from an allowable base claim is also allowable, and therefore the Applicants do not believe it is necessary to present arguments in favor of each and every dependent claim.

Claim 1

The Applicants contend that claim 1 (and rejected claims 3-4, 6 and 8-9 that depend therefrom) are patentable over Ims in view of Beckwith. With regard to claim 1, that claim includes the following features and limitations:

> A media level measurement apparatus, comprising:
>
> a sensor configured to provide a temperature signal corresponding to an ambient temperature;
>
> [...]

a signal processor configured to provide a media level signal in accordance with a comparison between the level signal and the temperature signal in response to the second signal.

(Emphasis added.)

Ims fails to teach or suggest, as admitted by the Examiner (page 5 of Office Action), a sensor configured to provide a temperature signal corresponding to an ambient temperature, as recited in combination with the other features and limitations of claim 1. Also, Ims fails to teach or suggest a signal processor configured to provide a media level signal in accordance with a comparison between the level signal and the temperature signal in response to the second signal, as recited in combination with the other features and limitations of claim 1.

Rather, Ims is directed to an ink supply monitoring circuit 33 wherein electrical power is supplied to a thermistor 34 for a fixed length of time and a *change* in temperature (i.e., of that same, singular thermistor) is measured *during* that fixed length of time in order to derive a signal representing ink content within an ink jet printhead (12, 18) (Figs. 1-2; Col. 4, lines 57-66; and Col. 5, lines 54-62 of Ims). Furthermore, Ims specifically recites that the change in temperature of the (singular) thermistor 34 is measured over (i.e., during the entirety of) the energization time in order to make the measurement (i.e., of the ink content) *insensitive to ambient temperature fluctuations* (Col. 4, lines 62-66 of Ims). This is not the same as what is recited by Applicants' claim 1. In fact, the methods and apparatus of Ims teach specifically away from the present invention as recited by instant claim 1.

In any case, Ims fails to teach or suggest any sort of sensor configured to provide a temperature signal corresponding to an ambient temperature, as recited by claim 1. In turn, Ims fails to teach or suggest comparison between a level signal and a temperature signal, for any reason.

Beckwith fails to cure the deficiencies of Ims. Specifically, Beckwith fails to teach or suggest a sensor configured to provide a temperature signal corresponding to an ambient temperature, as recited in combination with the other features and limitations of claim 1. Furthermore, Beckwith fails to teach or suggest a signal processor configured to provide a media level signal in accordance with a comparison between the level signal and the temperature signal in response to the second signal, as recited in combination with the other features and limitations of claim 1.

The Examiner has alleged that a thermistor must have a reference temperature (i.e., T_0), as recited within equations 16.3 and 16.3a of Beckwith, in order to function correctly in determining a change in resistance and thus, a temperature (pages 5-6 of Office Action). The Examiner further alleges that, as a result of this required reference temperature T_0, it would obvious to one of skill in the art to employ an additional (i.e., separate) thermistor for purposes of measuring an ambient (or other reference) temperature. Respectfully, the Examiner has misinterpreted the teachings of Beckwith.

On the contrary, the term T_0 of Beckwith refers to a baseline or reference temperature that is selected during the original design and manufacturing of a particular thermistor device, wherein that baseline temperature T_0 corresponds to a baseline (i.e., predetermined) electrical resistance value R_0. For example, a given thermistor may be defined and manufactured having a baseline electrical resistance R_0 of 1000 Ohms corresponding to a baseline temperature T_0 of 298.15 degrees K (25 degrees C). The manufacturer provides this information (usually in the form of a temperature-vs.-resistance graph or curve) when selling such a thermistor in order to enable its application by the end user. This R_0 / T_0 relationship is further exemplified by Figure 16.6 and Table 16.3 on pages 533 and 535 of Beckwith, respectively.

In short, Beckwith does not teach or suggest that a first thermistor is needed (or even recommended) to sense the/an ambient (i.e., reference) temperature, while a second thermistor senses the/a process or other temperature of particular interest.

Therefore, there is no way to select elements from Ims, and then to somehow combine those elements with other elements selected from Beckwith, in order to arrive at the present invention as recited by instant claim 1, as no possible combination of Ims and Beckwith teaches or suggests all of the required features and limitations. Such deficiencies on the part of Ims and Beckwith render the 103 rejection of claim 1 invalid in view of the requirements of MPEP 706.02(j).

For at least these reasons, the Applicants contend that claim 1 is allowable. As claims 3-4, 6 and 8-9 depend from claim 1, it is axiomatic that they too are allowable at least by virtue of their dependence from an allowable base claim.

Claim 43

The Applicants contend that claim 43 (and rejected claims 44-47 that depend therefrom) are patentable over Ims in view of Beckwith. With regard to claim 43, that claim includes the following features and limitations:

> A method of measuring a media level, comprising:
>
> providing a thermistor device;
>
> supporting a lengthwise portion of the thermistor device in contact with the media;
>
> applying an electrical pulse to the thermistor device;
>
> waiting for a predetermined period of time;
>
> sensing a level signal from the thermistor device after the predetermined period of time;
>
> sensing an ambient temperature;

comparing the ambient temperature to the level signal; and

providing a media level signal in response thereto.

(Emphasis added.)

Ims fails to teach or suggest waiting for a predetermined period of time, and sensing a level signal from the thermistor device **after** the predetermined period of time, as recited in combination with the other features and limitations of claim 43. Furthermore, Ims fails to teach or suggest sensing an ambient temperature, comparing the ambient temperature to the level signal, and providing a media level signal in response thereto, as recited in combination with the with the other features and limitations of claim 43.

Again, Ims is directed to measuring a ***change*** in the temperature (i.e., resistance) of a thermistor ***during*** the time power is applied to the thermistor (Col. 4, lines 62-66 of Ims). In fact, Ims teaches away from the present invention as recited by instant claim 43, as Ims performs such continuous signal measuring during thermistor energization *specifically for the purpose of ignoring the effects of* (as opposed to measuring) *ambient temperature* (Col. 4, lines 57-66 of Ims). That is, Ims provides no teaching, suggestion or motivation toward sensing an ambient temperature, for any reason. This is not the same as what is recited by instant claim 43.

Beckwith fails to cure the deficiencies of Ims. In particular, Beckwith fails to teach or suggest sensing an ambient temperature, comparing the ambient temperature to the level signal, and providing a media level signal in response thereto, as recited in combination with the with the other features and limitations of claim 43. As described above in regard to claim 1, Beckwith provides no teaching or suggestion related to sensing an ambient temperature, for any purpose, let alone for purposes of comparing that ambient temperature with any sort of level signal.

Therefore, there is no way to select elements from Ims, and then to somehow combine those elements with other elements selected from Beckwith, in order to arrive at the present invention as recited by instant claim 43, as no possible combination of Ims and Beckwith teaches or suggests all of the required features and limitations. Such deficiencies on the part of Ims and Beckwith render the 103 rejection of claim 43 invalid in view of the requirements of MPEP 706.02(j).

For at least these reasons, the Applicants contend that claim 43 is allowable. As claims 44-47 depend from claim 43, it is axiomatic that they too are allowable at least by virtue of their dependence from an allowable base claim.

Claim 48

The Applicants contend that claim 48 is patentable over Ims in view of Beckwith. With regard to claim 48, that claim includes the following features and limitations:

> A media level measurement apparatus, comprising:
>
> means for sensing an ambient temperature;
>
> means for providing a first signal and a second signal;
>
> means for providing an electrical current in response to the first signal;
>
> means for providing a level signal corresponding to a level of a media in response to the electrical current; and
>
> means for providing a media level signal in accordance with a comparison between the level signal and the temperature signal in response to the second signal.
>
> (Emphasis added.)

Ims fails to teach or suggest means for sensing an ambient temperature, as recited in combination with the other features and limitations of claim 48. Also, Ims fails to teach or suggest means for providing a media level signal in accordance with a comparison between the level signal and the temperature signal in response to the second signal, as recited in combination with the other features and limitations of claim 48. Again, Ims provides no teaching, suggestion or motivation whatsoever directed to sensing ambient temperature, for any reason.

Beckwith fails to cure the deficiencies of Ims. Specifically, Beckwith fails to teach or suggest means for sensing an ambient temperature, as recited in combination with the other features and limitations of claim 48. Also, Beckwith fails to teach or suggest means for providing a media level signal in accordance with a comparison between the level signal and the temperature signal in response to the second signal, as recited in combination with the other features and limitations of claim 48. Once again, Beckwith is directed to a physically describing and mathematically modeling thermistor devices. Beckwith provides no suggestion or motivation related to sensing an ambient temperature for any reason, and Beckwith certainly does not teach or motivate comparing an ambient temperature with a level signal, as recited, in varying language, by instant claim 48.

Thus, there is no way to select elements from Ims, and then to somehow combine those elements with other elements selected from Beckwith, in order to arrive at the present invention as recited by instant claim 48, as no possible combination of Ims and Beckwith teaches or suggests all of the required features and limitations. Such deficiencies on the part of Ims and Beckwith render the 103 rejection of claim 48 invalid in view of the requirements of MPEP 706.02(j).

For at least these reasons, the Applicants contend that claim 48 is allowable.

Summary

The Applicants believe that this response constitutes a full and complete response to the Office Action. Therefore, the Applicants request reconsideration of claims 1, 3-4, 6, 8-9, 23, 25 and 43-48, as respectively amended, in favor of timely allowance.

The Examiner is respectfully requested to contact the below-signed representative if the Examiner believes this will facilitate prosecution toward allowance of the claims.

Respectfully submitted,

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